

**PATENTS**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:	)	
<b>BARBEE, Robert Boyd</b>	)	Group Art Unit: <b>1714</b>
	)	
	)	
Serial No.: <b>Unassigned</b>	)	Examiner: <b>WYROZEBSKI LEE, K.</b>
	)	
Filed: <b>October 14, 2003</b>	)	Atty. Docket No. <b>USC12.CON1</b>
	)	<b>(019039.000150)</b>
For: <b>A POLYMER/CLAY NANOCOMPOSITE</b>	)	
<b>COMPRISING A CLAY MIXTURE AND</b>	)	
<b>A PROCESS FOR MAKING SAME</b>	)	

"Express Mail" Mailing Label Number: EV320212784US  
Date of Deposit: October 14, 2003  
I hereby certify that this correspondence is being deposited  
with the United States Postal Service "Express Mail Post  
Office to Addressee" service under 37 CFR 1.10 on the date  
indicated above to the Commissioner for Patents, Mail Stop  
Patent Application, P.O. Box 1450, Alexandria, VA 22313-1450.

Michelle E. Kandcer  
Reg. No. 54,207



Signature

**INFORMATION DISCLOSURE STATEMENT**

October 14, 2003

Commissioner for Patents  
Mail Stop Patent Application  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicant hereby voluntarily discloses the references listed on the attached Form  
PTO-1449 to the United States Patent and Trademark Office for the above-identified patent  
application.

The submission of these references shall not serve as an indication that a search has been  
conducted on the claimed subject matter, nor shall the submission be deemed an admission that

these references are, or are considered to be, material to the patentability of the above-identified patent application.

This Information Disclosure Statement is being submitted prior to the mailing of a first Office Action on the merits. Therefore, Applicant believes that no fee is due under 37 C.F.R. §1.17. However, if a fee is deemed to be due, the Commissioner is hereby authorized to charge such fee to Deposit Account No. 20-1507.

Respectfully submitted,

TROUTMAN SANDERS LLP

By: 

Michelle E. Kandcer

Reg. No. 54,207

Attorney for Applicant

Troutman Sanders LLP  
Bank of America Plaza, Suite 5200  
600 Peachtree Street, N.E.  
Atlanta, Georgia 30308-2216  
Tel. No.: (404) 885-3642  
Fax No.: (404) 962-6742

Please type a plus sign (+) inside this box →



PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Complete If Known</b>	
				Application Number	Unassigned
				Filing Date	Herewith
				First Named Inventor	BARBEE, Robert Boyd
				Group Art Unit	1714
				Examiner Name	Wyrozebski Lee
Sheet	1	of	10	Attorney Docket Number	USC12.CON1

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	A01	6,447,860		Mueller et al.	09-10-2002	
	A02	6,417,262		Turner et al.	07-09-2002	
	A03	6,407,155		Quian et al.	06-18-2002	
	A04	6,403,231		Mueller et al.	06-11-2002	
	A05	6,391,449		Lan et al.	05-21-2002	
	A06	6,384,121		Barbee et al.	05-07-2002	
	A07	6,376,591		Lan et al.	04-23-2002	
	A08	6,350,805		Korbee et al.	02-26-2002	
	A09	6,254,803		Matthews et al.	07-03-2001	
	A10	6,232,388		Lan, et al.	05-15-2001	
	A11	6,156,835		Anderson et al.	12-05-2000	
	A12	6,162,857		Trexler et al.	12-19-2000	
	A13	6,120,860		Bowen et al.	09-19-2000	
	A14	6,117,541		Frisk	09-12-2000	
	A15	6,084,019		Mataybas	07-04-2000	
	A16	6,071,988		Barbee et al.	06-06-2000	
	A17	6,057,396		Lan et al.	05-02-2000	
	A18	6,060,549		Li et al.	05-09-2000	
	A19	6,050,509		Clarey et al.	04-18-2000	
	A20	6,036,765		Farrow et al.	03-14-2000	

FOREIGN PATENT DOCUMENTS								
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	A21	EP	0940430			09-08-1999		
	A22	WO	99/38915			08-05-1999		
	A23	WO	99/15432			04-01-1999		
	A24	WO	98/53000			11-26-1998		
	A25	WO	98/29499			07/09/1998		
	A26	JP	10168305			06-23-1998		
	A27	EP	0846723			06-10-1998		
	A28	JP	10133013			05-22-1998		
	A29	JP	10077427			03-24-1998		
	A30	EP	0822163		Serrano et al.	02-04-1998		
Examiner Signature						Date Considered		

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement. This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.





Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>				<b>Complete If Known</b>	
				Application Number	Unassigned
				Filing Date	Herewith
				First Named Inventor	BARBEE, Robert Boyd
				Group Art Unit	1714
Examiner Name	Wyrozebski Lee				
Attorney Docket Number	USC12.CON1				
Sheet	2	of	10		

U.S. PATENT DOCUMENTS						
Examiner Initials <sup>*</sup>	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	B1	6,034,163		Barbee et al.	03-07-2000	
	B2	6,017,632		Pinnavaia et al.	01-25-2000	
	B3	5,993,769		Pinnavaia et al.	11-30-1999	
	B4	5,972,448		Frisk et al.	10-26-1999	
	B5	5,952,093		Nichols et al.	09-14-1999	
	B6	5,942,320		Miyake et al.	08-24-1999	
	B7	5,916,685		Frisk et al.	06-29-1999	
	B8	5,882,751		Occhiello et al.	03-16-1999	
	B09	5,876,812		Frisk et al.	03-02-1999	
	B10	5,849,830		Tipursky et al.	12-15-1998	
	B11	5,830,544		Kerschler et al.	11-03-1998	
	B12	5,807,630		Christie et al.	09-15-1998	
	B13	5,780,376		Gonzales et al.	07-14-1998	
	B14	5,747,560		Christiani et al.	05-05-1998	
	B15	5,728,764		Bauer et al.	03-17-1998	
	B16	5,665,454		Hosoi et al.	09-09-1997	
	B17	5,660,761		Katsumoto et al.	08-26-1997	
	B18	5,648,159		Sato	07-15-1997	
	B19	5,620,774		Etchu et al.	04-15-1997	
	B20	5,612,138		Kurts et al.	03-18-1997	

FOREIGN PATENT DOCUMENTS								
Examiner Initials <sup>*</sup>	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	B21	WO	98/01346			01-15-1998		
	B22	JP	10001608			01-06-1998		
	B23	WO	97/02323			01-23-1997		
	B24	WO	97/44384			11-27-1997		
	B25	WO	97/31973			09-04-1997		
	B26	WO	97/31057			08-28-1997		
	B27	WO	97/30950			08-28-1997		
	B28	JP	9217012			08-19-1997		
	B29	JP	9176461			07-08-1997		
	B30	EP	780340			06-25-1997		

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement. This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box →



PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Complete If Known</b>	
				Application Number	Unassigned
				Filing Date	Herewith
				First Named Inventor	BARBEE, Robert Boyd
				Group Art Unit	1714
Examiner Name	Wyrozebski Lee				
Attorney Docket Number	USC12.CON1				
Sheet	3	of	10		

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	C01	5,578,672		Beall et al.	11-26-1996	
	C02	5,552,469		Beall et al.	09-03-1996	
	C03	5,530,052		Takekoshi et al.	06-25-1996	
	C04	5,523,045		Kudert et al.	06-04-1996	
	C05	5,514,734		Maxfield et al.	05-07-1996	
	C06	5,454,865		Ginn et al.	10-03-1995	
	C07	5,434,000		Konagaya et al.	07-18-1995	
	C08	5,429,999		Nae et al.	07-04-1995	
	C09	5,414,042		Yasue et al.	05-09-1995	
	C10	5,385,776		Maxfield et al.	01-31-1995	
	C11	5,382,650		Kasowski et al.	01-17-1995	
	C12	5,374,306		Schlegel et al.	12-20-1994	
	C13	5,371,051		Pope et al.	12-06-1994	
	C14	5,340,884		Mills et al.	08-23-1994	
	C15	5,336,647		Nae et al.	08-09-1994	
	C16	5,334,241		Jordan	08-02-1994	
	C17	5,314,987		Kim et al.	05-24-1994	
	C18	5,273,706		Laughner	12-28-1993	
	C19	5,248,720		Deguchi et al.	09-28-1993	
	C20	5,221,507		Beck et al.	06-22-1993	

FOREIGN PATENT DOCUMENTS								
Examiner Initials <sup>*</sup>	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	C21	WO	97/17398			05-15-1997		
	C22	EP	0761739			03-12-1997		
	C23	JP	09048908			02-18-1997		
	C24	EP	747451			12-11-1996		
	C25	EP	681990			11-15-1996		
	C26	WO	96/25458			08-22-1996		
	C27	WO	96/08526			03-21-1996		
	C28	EP	0691376			01-10-1996		
	C29	EP	0691212			01-10-1996		
	C30	WO	95/14733			06-01-1995		

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement. This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



Please type a plus sign (+) inside this box →



PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031  
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



Substitute for form 1449A/PTO				<b>Complete If Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				Application Number	Unassigned
				Filing Date	Herewith
				First Named Inventor	BARBEE, Robert Boyd
				Group Art Unit	1714
(use as many sheets as necessary)				Examiner Name	Wyrozebski Lee
Sheet	4	of	10	Attorney Docket Number	USC12.CON1

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	D01	5,206,284		Fukui et al.	04-27-1993	
	D02	5,164,460		Yano et al.	11-17-1992	
	D03	5,153,061		Cavagna et al.	10-06-1992	
	D04	5,153,062		Grolig et al.	10-06-1992	
	D05	5,149,485		Belcher	09-22-1992	
	D06	5,110,501		Knudson Jr. et al.	05-05-1992	
	D07	5,102,948		Deguchi et al.	04-07-1992	
	D08	5,091,462		Fukui et al.	02-25-1992	
	D09	5,037,285		Kudert et al.	08-06-1991	
	D10	5,034,252		Nilsson et al.	07-23-1991	
	D11	5,028,462		Matlack et al.	07-02-1991	
	D12	5,011,534		Berube	04-30-91	
	D13	4,994,313		Shimizu et al.	02-19-1991	
	D14	4,983,719		Fox et al.	01-08-1991	
	D15	4,983,432		Bissot	01-08-1991	
	D16	4,957,980		Kobayashi et al.	09-18-1990	
	D17	4,946,365		Kudert et al.	08-07-1990	
	D18	4,894,411		Okada et al.	01-16-1990	
	D19	4,889,885		Usuki et al.	12-26-1989	
	D20	4,810,734		Kawasumi et al.	03-07-1989	

FOREIGN PATENT DOCUMENTS								
Examiner Initials	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	D21	EP	650994			05-03-1995		
	D22	WO	95/06090			03-02-1995		
	D23	JP	7026123			01-27-1995		
	D24	WO	94/29378			12-22-1994		
	D25	WO	94/11430			05-26-1994		
	D26	EP	0590263			04-06-1994		
	D27	WO	93/14922			08-05-1993		
	D28	WO	93/11190			06-10-1993		
	D29	EP	542266			05-19-1993		
	D30	WO	93/04125			03-04-1993		

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement. This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.





Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>				<b>Complete If Known</b>	
				Application Number	Unassigned
				Filing Date	Herewith
				First Named Inventor	BARBEE, Robert Boyd
				Group Art Unit	1714
Examiner Name	Wyrozewski Lee				
Attorney Docket Number	USC12.CON1				
Sheet	5	of	10		

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	E01	4,777,206		Rittler	10-11-1988	
	E02	4,769,078		Tso	09-06-1988	
	E03	4,742,098		Finlayson et al.	05-03-1988	
	E04	4,739,007		Okada et al.	04-19-1988	
	E05	4,725,466		Crass et al.	02-16-1988	
	E06	4,720,420		Crass et al.	01-19-1988	
	E07	4,680,208		Aoki et al.	07-14-1987	
	E08	4,677,158		Tso et al.	06-30-1987	
	E09	4,676,929		Rittler	06-30-1987	
	E10	4,646,925		Nohara	03-03-1987	
	E11	4,600,409		Campbell	07-15-1986	
	E12	4,595,715		Kuze et al.	06-17-1986	
	E13	4,546,126		Breitenfellner et al.	10-08-1985	
	E14	4,536,425		Hekal	08-20-1985	
	E15	4,517,112		Mardis et al.	05-14-1985	
	E16	4,482,695		Barbee et al.	11-13-1984	
	E17	4,472,538		Kamigaito et al.	09-18-1984	
	E18	4,450,095		Finlayson	05-22-1984	
	E19	4,442,163		Kuhner et al.	04-10-1984	
	E20	4,434,076		Mardis et al.	02-28-1984	

FOREIGN PATENT DOCUMENTS								
Examiner Initials <sup>2</sup>	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	E21	WO	93/04117			03-04-1993		
	E22	EP	459472			12-04-1991		
	E23	EP	398551			11-22-1990		
	E24	EP	295336			12-21-1988		
	E25	DE	3808623			10-06-1988		
	E26	DE	3806548			09-15-1988		
	E27	EP	278403			08-17-1988		
	E28	EP	261430			03-30-1988		
	E29	JP	62073943			04-04-1987		
	E30	EP	0202532			11-26-1986		

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement. This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Complete If Known</b>	
				Application Number	Unassigned
				Filing Date	Herewith
				First Named Inventor	BARBEE, Robert Boyd
				Group Art Unit	1714
Examiner Name	Wyrozebski Lee				
Attorney Docket Number	USC12.CON1				
Sheet	6	of	10		

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	F01	4,429,079		Shibata et al.	01-31-1984	
	F02	4,398,642		Okudaria et al.	08-16-1983	
	F03	4,393,007		Priester et al.	07-12-1983	
	F04	4,381,948		McConnell	05-03-1983	
	F05	4,239,826		Knott, II et al.	12-16-1980	
	F06	4,219,527		Edelman et al.	08-26-1980	
	F07	4,163,002		Pohl et al.	07-31-1979	
	F08	4,161,578		Herron	07-17-1979	
	F09	4,133,802		Hachiboshi et al.	01-09-1979	
	F10	4,071,503		Thomas et al.	01-31-1978	
	F11	4,064,112		Rothe et al.	12-20-1977	
	F12	4,018,746		Brinkmann et al.	04-19-1977	
	F13	3,946,089		Furukawa et al.	03-23-1976	
	F14	3,876,552		Moynihan	04-08-1975	
	F15	3,843,479		Matsunami et al.	10-22-1974	
	F16	3,823,169		Staub	07-09-1974	
	F17	3,879,283		Mercade	04-22-1975	
	F18	3,792,969		Gertisser	02-19-1974	
	F19	3,700,398		Cole, Jr.	10-24-1972	
	F20	3,646,072		Shaw	02-29-1972	

FOREIGN PATENT DOCUMENTS								
Examiner Initials <sup>2</sup>	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	F21	EP	186456			07-02-1986		
	F22	WO	84/03096			08-16-1984		
	F23	GB	2123014			01-25-1984		
	F24	JP	76029697			03-09-1976		
	F25	JP	75010196			04-18-1975		
	F26	JP	75005751			03-06-1975		
	F27	JP	75005735			03-06-1975		
	F28	JP	75001156			01-16-1975		
	F29	GB	1090036			11-08-1967		
	F30	WO	99/41299			08-19-1999		

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.



Please type a plus sign (+) inside this box →



PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<i>Complete If Known</i>	
				Application Number	Unassigned
				Filing Date	Herewith
				First Named Inventor	BARBEE, Robert Boyd
				Group Art Unit	1714
				Examiner Name	Wyrozebski Lee
Sheet	7	of	10	Attorney Docket Number	USC12.CON1

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	G01	3,627,625		Jarrett	12-14-1971	
	G02	3,544,523		Maxion	12-01-1970	
	G03	3,514,498		Okazaki et al.	05-26-1970	
	G04	3,499,916		Berthold	03-10-1970	
	G05	3,391,164		Straley et al.	07-02-1968	
	G06	3,281,434		Turetzky et al.	10-25-1966	
	G07	3,232,934		Hoare	02-01-1966	
	G08	3,125,586		Katz et al.	03-17-1964	
	G09	3,076,821		Hoare	02-05-1963	
	G10	2,957,010		Straley et al.	10-18-1960	
	G11	2,938,914		Joyce	05-31-1960	
	G12	2,924,609		Joyce	02-09-1960	
	G13	2,737,517		Boyd	03-06-1956	
	G14	3,849,406		Basel et al.	11-19-1974	
	G15	2,531,427		Hauser	11-28-1950	
	G16	2,966,506		Jordan	12-27-1960	
	G17	4,081,496		Finlayson	03-28-1978	
	G18	4,105,578		Finlayson	08-08-1978	
	G19	4,116,866		Finlayson	09-26-1978	
	G20	4,208,218		Finlayson	06-17-1980	

FOREIGN PATENT DOCUMENTS								
Examiner Initials <sup>2</sup>	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	G21	WO	0034393			06-15-2000		
	G22	WO	0034378			06-15-2000		
	G23	EP	090787			04-21-1999		
	G24	EP	0822163			02-04-1998		
	G25	EP	0899301			03-03-1999		
	G26	WO	93/04118			03-04-1993		

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.



Substitute for form 1449B/PTO				Complete If Known	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				Application Number	Unassigned
				Filing Date	Herewith
				First Named Inventor	BARBEE, Robert Boyd
				Group Art Unit	1714
(use as many sheets as necessary)				Examiner Name	Wyrozebski Lee
Sheet	9	of	10	Attorney Docket Number	USC12.CON1

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or county where published.	T <sup>2</sup>
	I1	LEBARON et al., "Polymer-Layered Silicate Nanocomposites: an Overview," <i>App. Clay Sci.</i> , 15, 11-29 (1999)	
	I2	KE et al., "Crystallization, Properties, and Crystal Nanoscale Morphology of PET-Clay Nanocomposites," <i>J. Appl. Polym. Sci.</i> , 71, 1139-1146 (1999)	
	I3	GIANNELIS, "Polymer Layered Silicate Nanocomposites," <i>Advanced Materials</i> , 8, 29-35 (1996)	
	I4	ORIAKHI et al., "Incorporation of poly(acrylic acid), poly(vinylsulfonate) and poly(styrenesulfonate) within layered double hydroxides," <i>J. Mater. Chem.</i> , 6, 103-107 (1996)	
	I5	MESSERSMITH et al., "Synthesis and Barrier Properties of Poly(t-Caprolactone)-Layered Silicate Nanocomposites," <i>J. of Polym. Sci.</i> , 33, 1047-1057 (1995)	
	I6	SUGAHARA et al., "Clay-Organic Nano-Composite: Preparation of a Kaolinite - Poly(vinylpyrrolidone) Intercalation Compound," <i>J. Ceramic Society of Japan</i> , 100, 413-416 (1992).	
	I7	YANO et al., "Synthesis and properties of polyimide-clay hybrid," <i>ACS, Polymer Preprints</i> , 32, 65-66 (1991)	
	I8	FUKUSHIMA et al., "Swelling Behavior of Montmorillonite by Poly-6- Amide," <i>Clay Minerals</i> , 23, 27-34 (1988)	
	I9	VERBICKY, <i>Encyclopedia of Polymer Science and Engineering</i> , 2 <sup>nd</sup> Edition, 12, 364-383 (1988)	
	I10	FUKUSHIMA et al., "Synthesis of an Intercalated Compound of Montmorillonite and 6-Polyamide," <i>J. Inclusion Phenomana</i> , 5, 473-482 (1987)	
	I11	OKADA et al., "Synthesis and Characterization of a Nylon 6-Clay Hybrid," <i>ACS, Polymer Preprints</i> , 28, 447-448 (1987)	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

**+** Burden Hour Statement. This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Substitute for form 1449B/PTO				<b>Complete If Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				Application Number	Unassigned
				Filing Date	Herewith
				First Named Inventor	BARBEE, Robert Boyd
				Group Art Unit	1714
				Examiner Name	Wyrozebski Lee
(use as many sheets as necessary)				Attorney Docket Number	USC12.CON1
Sheet	10	of	10		

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or county where published.	T <sup>2</sup>
	J1	FAHN ET AL., "Reaction Products of Organic Dye Molecules with Acid-Treated Montmorillonite," <i>Clay Minerals</i> , 18, 447-458 (1983)	
	J2	GREENLAND, "Adsorption of Polyvinyl Alcohols by Montmorillonite," <i>J. Colloid Sci.</i> , 18, 647-664 (1963)	
	J3	T. J. PINNAVAIA and TIE LAN, "Clay-Reinforced Epoxy Nanocomposites," <i>Chem. Mater.</i> , 6, 2216 (1994) <sup>r</sup>	
	J4	Y. KUROKAWA, H. YASUDA, A. OYA, "Preparation of a Nanocomposite of Polypropylene and Smectite," <i>Mater. Sci. Letters</i> , 15, 1481 (1996)	
	J5	M. KAWASUMI, N. HASEGAWA, M. KATO, A. USUKI, and A. OKADA, "Preparation and Mechanical Properties of Polypropylene-Clay Hybrids," <i>Macromolecules</i> , 30, 6333 (1997)	
	J6	A. USUKI, M. KATO, A. OKADA, T. KURAUCHI, "Synthesis of Propylene-Clay Hybrid," <i>J. App. Polym. Sci.</i> , 63, 137 (1997)	
	J7	C.O. SRIAKHI et al. <i>J. Mater. Chem.</i> , 6, 103 (1996).	

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

**+** Burden Hour Statement. This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.